Station Keeping Buoy Energy Harvesting/Harnessing RFI SN08-45 Clarifications

Applications: The respondent is free to suggest a viable application for the station keeping buoy in order to bound the system concept and define an energy trade-space. The application should address desired national defense problems and should have an evident advantage(s) over existing systems. Examples include ASW, communications relay, environmental monitoring, SIGINT or other ISR.

Station Keeping Watch Circle: It is desired to maintain the smallest possible watch circle consistent with the mission and a net positive energy balance. This will be application- and mission-dependent, therefore a system concept should provide the baseline energy budget from which variations could be scaled.

Net Positive Energy Balance: Positive energy harvesting means the generation or collection of more energy than is expended over a representative mission.

Currents: The station keeping buoy must maintain station in all currents likely to be encountered in a chosen mission.

Power Profile: Power requirements will be application dependent. This RFI does not specify the station keeping buoy application, but some notional mission payload power requirements are listed below.

Mission Payload	Power Requriments		Daily Energy Requirements
	W	% Duty Cycle	W-hr
OTH Communcations	1.7	7%	2.72
Passive ASW	1.9	100%	45.6
Active ASW	1000	0.2%	48
Underwater Acoustic Communications	100	1%	24
Environmental Suite	0.75	100%	18

Vulnerability: There are no requirements for tamper-proof or covert devices. However, these features are clearly operational attributes and, if incorporated, highly desirable.

Deployment: Systems may be deployed from any or all US Navy surface, subsurface or air platforms. Deployment conditions and procedures should be consistent with existing deployable payloads from those platforms.

Packaging: It is desired for the stored unit to fit into a container nominally 1 ft diameter and 8.5 feet long. Deviations will be acceptable if the overall system concept has attributes that warrant a different package.

Cost: No cost goal has been specified. A higher unit cost should be justified by increased performance or endurance over existing capability.

Materials: No materials restrictions.